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ABSTRACT

This study investigates the ability of 13-month-old infants to use objects of varying degrees of realism in symbolic play and the generalization of this ability across different scene content. The effects of order of presentation of the task and of the behavioral coding scheme on the assessment of those abilities were also examined. Thirty male and female infants were shown scenes acted out with objects at each of four levels of abstraction (first, the real object; second, a tiny replica; third, an abstract object of the same general shape; and fourth, a placeholder object). For each object, order of presentation was varied by presenting all four levels of abstraction together in one experiment, and presenting them in semi-random order in another experiment. Nine different coding schemes were applied to the latter experiment to test the effects of coding scheme. Certain of these schemes were designed to manipulate three parameters: (1) spontaneous vs. imitated play, (2) level of quality of play demanded, and (3) use of target objects as opposed to props. Results indicated that order of presentation may affect assessment of the child's ability to generalize across scene content, but does not affect assessment of the child's capacity for object substitution. Different coding schemes affected assessment of the child's ability to deal with different kinds of scene content, but did not affect assessment of the child's ability to use objects of different degrees of abstraction. (SS)

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DECONTEXTUALIZATION IN SYMBOLIC PLAY

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The guiding theoretical force for the study of the transition from sensori-motor to symbolic, representational intelligence has been the work of Piaget (1962) and Werner and Kaplan (1963). Piaget theorizes that the symbolic function, of which language is one manifestation, grows out of earlier and concurrent cognitive development. Symbolic play is another manifestation of this symbolic capacity, and includes such "pretend" activities as holding a spoon up to one's ear as if it were a telephone.

A critical aspect of symbolic development, in language or in symbolic play, is decontextualization. Decontextualization refers to the child's growing ability to create and use symbols which become increasingly distant from the representations of the events to which those symbols refer. That is, the symbol becomes free of the context in which it originated.

Decontextualization can take place at several levels. In symbolic play, for instance, it seems that the child first becomes able to differentiate the symbol from its customary behavioral context, e.g., drinking from an empty cup when the child is not thirsty. Later, the child becomes able to displace that act away from the self, for instance, pretending to take on others' activities or making other people or objects

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perform activities that the child usually does. Still later, the use of an object for pretense becomes less dependent on the perceptual features of the objects--the child may use one object for another or use less realistic rather than more realistic objects.

This study will concentrate primarily on only one of these aspects of decontextualization in symbolic play: object substitution. Another way to describe this phenomenon is to call it decontextualization when the root word "context" refers to the perceptual characteristics of the object.

Experimental studies of object substitution, for example by Overton and Jackson (1973), Elder and Pederson (1978), Fein (1975) and Killen and Uzgiris (1978) suggest that there is a developmental course in the child's willingness or ability to accept and/or produce substitutes for the real object in symbolic play. For a time, only a cup can be a cup. Later, perhaps anything with an inside or a handle might do, and even later, completely dissimilar objects or no objects at all might be acceptable for the purposes of play.

At thirteen months, infants are beginning to extract linguistic and gestural symbols from their behavioral surrounds, applying words or gestures beyond the situations in which they originated. Are they also beginning to separate the symbol from the perceptual support of the object? Could that understanding be "primed" by the method of elicited symbolic play?

Wolf and Gardner (in press) have provided a means for assessing, at this age, the degree to which the infant will

use more or less prototypical or realistic objects in symbolic play. This task, in comparison with other studies of object substitution, provides much more social or "script" support. An adult models three familiar scenarios (drinking, eating, and putting a doll to bed) with real objects. After the modelling, the adult asks the child to acto out the scene with the real object, a tiny replica, an abstract one of the same general shape, and a placeholder object, which is a wooden cylinder, all with no further modelling. All four levels of abstraction are presented in the same order for each scenario in turn. This method, though promising, makes it difficult to separate the effects of abstraction from the effects of memory, since there was only one model. The effects of fatigue or learning are also confounded with abstraction, since the order of presentation is always in the same order of increasing abstraction.

Two experiments were undertaken to remove these confounds one at a time. In the first experiment, the order of presentation remained the same as in Wolf and Gardner's experiment, but the scene was modelled before each trial, thus removing the memory confound. In the second experiment, again, each trial was modelled, but in this case the trials were presented in randomized orders. Alternative hypotheses could be stated for the effect of order on the children's imitation performance. It could be that having several instances of the same script occur in a row, as in the first experiment, would build up a social context for for symbolic use of the object which could overcome the perceptual degradation of that object. On the

other hand, having seen a good instance of the category, the child might be less willing to use a poorer exemplar, so that a random presentation would yield a better performance on the less realistic objects.

Both of these studies used "number of components of the scenario imitated" as a dependent variable. Following Nicolich's (1978) observation that researchers do not always agree upon defintions of symbolic play acts, the results of the second experiment were re-analysed using several coding schemes, in order to determine whether the results of studies like these are dependent upon the criteria for scoring elicited symbolic play.

To summarize so far, we are interested in 13-month-olds' ability to use objects of varying degrees of realism in symbolic play. We would also like to know whether these infants can generalize that understanding across different scene content. We want to know whether our assessment of those abilities is dependent on 1) the order of presentation of the task, and 2) the coding scheme applied to their performance.

A comparison of the two previously mentioned experiments informs us about the effects of order of presentation on the child's ability to use more or less realistic objects and to generalize that understanding to different scene content.

Thirty subjects participated in each experiment, 15 boys and 15 girls. The materials are illustrated in Figure 1.

Insert Figure 1 about here

To review, in the Wolf and Gardner task, three scenes are acted out with objects at each of four levels of abstraction.

Thus there are 12 trials. Each scene also has certain characteristic accessory "prop" materials that are not affected by the abstractness manipulation. For example, the eating scene was acted out in the following way. First, you choose a food name that the child might understand, in this example, ice cream.

"Let's have some ice cream. Stir it all up." (Stirring with spoon on plate) "Mm, good icream" (Bringing spoon to mouth.) Repeat eating twice. "All done. Gotta wipe my mouth." (Wiping face with napkin) "Would you like to have some ice cream?" (Passing objects to child.)

The child was scored on the number of components of this scene that s/he imitated, e.g., stirring, bringing spoon to mouth, saying "mm", and wiping face with the napkin.

In the first experiment, all the drinking trials were presented first, with the real object first, tiny econd, abstract thir , and placeholder fourth. Then the eating trials were presented, with the objects in the same order of increasing abstraction. Finally the doll trials followed, also in the same order. At each trial the scene was modelled, and the activity was suggested to the child verbally.

In experiment two, modelling and suggestion accompanied each trial, but the trials were presented in semi-random orders. No two trials of the same sceneerwere presented one after the other, nor did two trials of the same level of abstraction come together in the sequence.

When the two studies were compared in an analysis of variance which included study as a variable, there was a main effect for abstraction, a main effect for scene, and a scene by study inter-

action. The study by abstraction interaction was not significant.

The scene by study interaction, shown in Figure 2,

Insert Figure 2 about here

suggests that some fatigue was at work in the first experiment, since the last scene to be presented in that experiment had the lowest mean. However, the outcome of the abstractness manipulation, with the means ordered real, tiny, abstract, and placeholder, from highest to lowest, was not affected by the order of presentation.

This indicates that order of presentation may affect our assessment of the child's ability to generalize across scene content, but that order of presentation does not seem to affect our assessment of the child's capacity for object substitution.

Our second question was whether assessments of scene-specificty and object substitution are affected by the coding scheme applied to the child's performance. To answer this question, nine different coding schemes were applied to the data from experiment two. Two of the coding schemes were similar to the one used in experiments one and two. The others were designed to manipulate three parameters: 1) spontaneous vs. imitated play, 2) level of quality of play demanded, and 3) use of target objects as opposed to props. Sample coding schemes which illustrate these different dimensions are shown in Table 1, along with an example of how a particular behavior was treated in each of these coding schemes.

There were significant main effects for scene and abstraction. The scene means were ordered eating, doll, and drinking, from

Insert Table 1 about here

highest to lowest. The abstraction means were ordered real, tiny, abstract, and placeholder, from highest to lowest. Coding scheme interacted with scene, but there was no main effect of coding scheme, nor did it enter into a two-way interaction ith abstraction.

Consequently, different coding schemes gave different views of the child's ability to deal with different kinds of scene content, but did not give different views of the child's ability to use objects of different degrees of abstraction.

In summary, we have seen that different orders of presentation and different coding schemes may give different views of the child's ability to generalize his/her symbolic capacities across different kinds of scene content. On the other hand, the effect of abstraction on the child's symbolic use of objects seems to be a relatively robust effect which is apparently unaffected by different experimental procedures or the vagaries of behavioral definitions. In other words, what we've found is that 13-month-olds are willing to play the symbolism game of letting one object stand for another, but only if the object "meets the child halfway" or "cooperates" by looking like the real McCoy.

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Figure 1. Materials used in administering the modified Wolf and Gardner task.

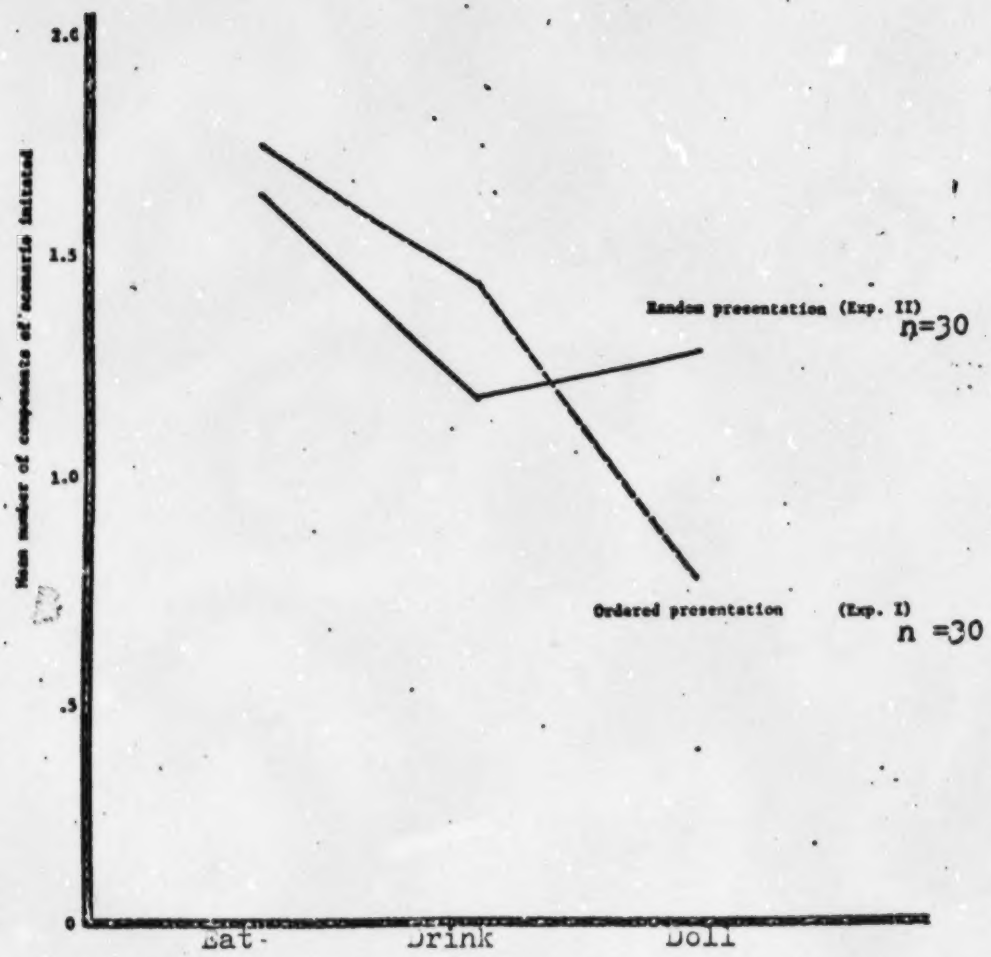

Figure 2. Scene by Study interaction.

Table 1

SAMPLE CODING SCHEME TREATMENTS
OF AN EXAMPLE BEHAVIOR, DRINKING

LEVEL OF QUALITY DIMENSION

Contrast:
High quality/no elaboration: Drinking occurs when the child brings the cup to mouth, tilts head backward, has the open end of the cup toward self, and places the rim of the cup on lower lip.
with:
Low quality/no elaboration: Drinking occurs when the child brings the cup or pitcher to the mouth, or holds the cup or pitcher to mother/experienter's mouth as if giving her a drink.

SPONTANEOUS VS. IMITATED DIMENSION

Contrast:
Low quality/no elaboration: above
with:
Low quality/elaboration included: The child may receive three points for drinking: 1) brings cup or pitcher to mouth 2) holds out cup or pitcher to mother/experimenter's mouth as if giving a drink 3) claps hands as s/he does at home when s/he has finished eating or drinking ("adlib")

TARGET OBJECT VS. PROPS DIMENSION

Contrast:
Low quality/ elaboration included: above
with:
Target object only: The child may receive two points for drinking: 1) brings cup to mouth 2) gives mother/experimenter a drink from cup